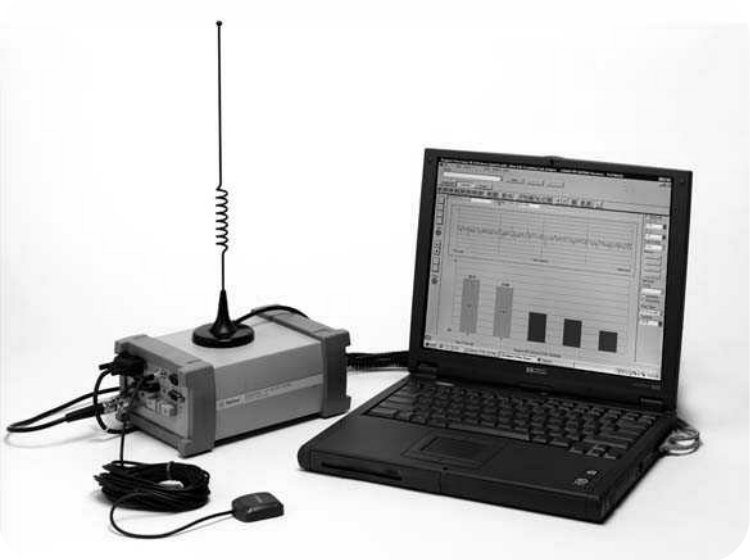
Agilent
E7476A W-CDMA Drive-Test System
Configuration Guide



The Agilent E7476A W-CDMA drive-test system is used to obtain RF coverage measurements for wireless communications networks using W-CDMA 3GPP technologies. A PC interfaces with an Agilent digital RF receiver. The system can control up to four receivers simultaneously.

The Agilent E7476A W-CDMA Drive-Test System is offered in the following configuration:

- ❏ Receiver-based systems

The purpose of this configuration guide is to assist you in ordering the correct system configuration for your application. It is designed to be used in conjunction with the Agilent E7476A Technical Specifications, literature 5980-3027EN which describes the features and functionality in detail. This document is divided into four parts:

- ❏ Part 1: Basic description of product configuration
- ❏ Part 2: Software options
- ❏ Part 3: Receiver hardware options
- ❏ Part 4: Accessories
- ❏ Part 5: Upgrading existing systems
- ❏ Part 6: Ordering examples

Agilent Technologies

Part 1: Basic description of product configuration

The system is made up of software, receiver hardware, and accessories. To order a system you:

1. Choose the software functionality that you want (option numbers in the 100s)
2. Choose the receiver hardware that you want (option numbers in the 300s)
3. Choose the accessories that you want (Agilent 86154A and E6473A Drive-Test System Accessories)

Each system requires an Agilent digital receiver. The system also requires a PC with Windows® 95, 98 or NT® running the measurement software. A GPS receiver and GPS antenna is required in order to log the position information and provide timing for the receiver W-CDMA measurements.

IMPORTANT: At least one option must be ordered for the product configuration to be valid.

Figures 1 and 2 illustrate the process of choosing the specific options to order with your Agilent E7476A system.

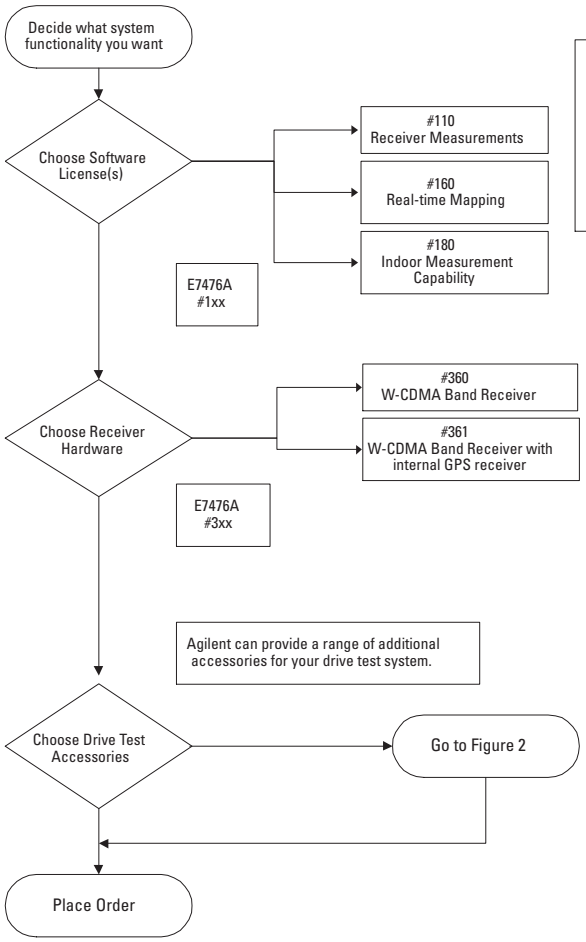


Figure 1. Ordering Decision Process - New Systems

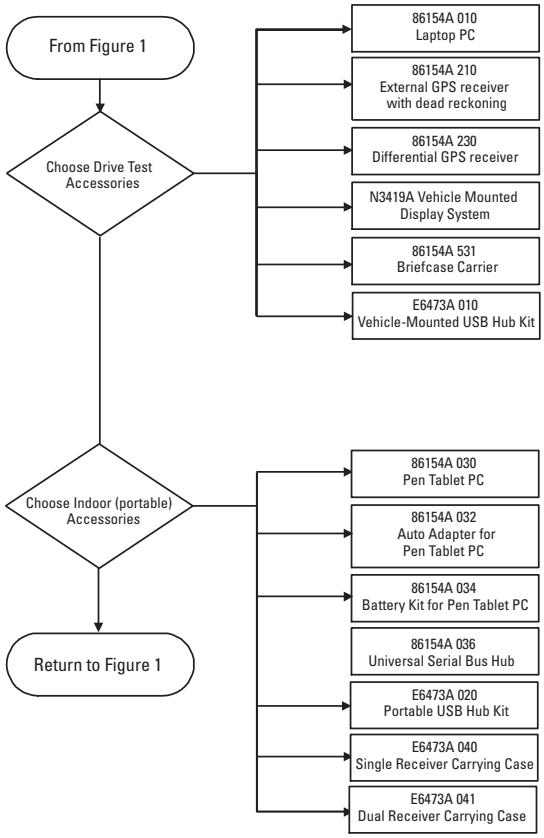


Figure 2. Ordering Decision Process - Accessories for New Systems

Part 2: Software options

This part of the document assumes that you are creating a new system. If you are adding functionality to an existing system, refer to Part 5: Upgrading existing systems.

The following software options are available on the Agilent E7476A:

- ❏ Option 110: W-CDMA receiver-based system software license
- ❏ Option 160: Real-time mapping software license
- ❏ Option 180: Indoor measurement capability

Use Table 1 below to determine which software option(s) you require for your application. For a detailed description of the functionality, please refer to the Agilent E7476A Technical Specifications, literature 5980-3027EN.

Desired Functionality	Software Option(s) Required
Receiver-based drive system measurements (up to 4 receivers)	110
Real-time mapping capability (can be combined with all other other software functionality)	160 (can be combined with any or all software option numbers)
Indoor measurement capability (can be combined with all other other software functionality)	180 (can be combined with any or all software option numbers)

Table 1: Software functionality

Each software order includes the following components:

- ❏ CD with software and documentation
- ❏ Getting Started Guide
- ❏ Software license key. Two software key configurations are provided: PC parallel port or USB port configurations. The user selects the desired PC configuration for the software license key

Part 3: Receiver hardware options

This part of the document assumes that you are creating a new system. If you are adding functionality to an existing system, refer to Part 5: Upgrading existing systems.

The following digital receiver hardware options are available on the Agilent E7476A:

- ❏ Option 360: W-CDMA Band Digital Receiver
- ❏ Option 361: W-CDMA Band Digital Receiver with Internal GPS Receiver

Software option 110 or 180 is required to operate Agilent receivers. One software package can control up to four receivers.

When selecting a measurement receiver you have the option of having an interal GPS receiver. Internal GPS provides portability and simplifies system configuration. If you require dead reckoning with your GPS, you need to use an external GPS and should not select a receiver with an internal GPS. Agilent RF receivers with internal GPS can not be used with an external GPS. Agilent offers an external GPS with dead reckoning capability. Refer to Part 4: Accessories.

In multiple receiver configurations, only one of the receivers requires GPS functionality. If you are using multiple receivers in your system, you should only select one of the receivers with internal GPS.

Each receiver includes the following components:

- Magnetic-mount RF antenna for the corresponding frequency band
- TNC-to-typeN adapter for RF antenna
- RS-232 cable for connection to PC*
- Cable for connecting in multiple receiver configuration
- AC/DC power supply*
- DC power cord – cigarette lighter type*
- Mounting kit (brackets and screws for mounting receiver in a vehicle)

The receivers with internal GPS receivers (option 361):

- Magnetic-mount GPS antenna with cable

* Alternatively, Agilent provides optional system accessories that can be used to power and connect simultaneously up to 2 receivers to the PC. Two configurations are provided E6473A option 010 (vehicle-mounted USB hub) and option 020 (portable USB hub kit) for in-vehicle and indoor (portable) wireless measurement applications.
Refer to Part 4: Accessories

Part 4: Drive test accessories

In addition to the E7476A system components for drive testing, Agilent supplies a range of accessory products to supplement and enhance your E7476A measurement system. The accessories can be divided up into the following categories:

- ❏ Drive test system accessories
- ❏ Drive test system replacement accessories
- ❏ Indoor (portable) measurement system accessories

The following accessories are ordered under the 86154A or E6473A accessories product numbers, not the E7476A W-CDMA drive-test product. The accessory model number is provided for each option to distinguish which product number should be used.

For a detailed description of these accessories, please refer to the Agilent E7476A W-CDMA Drive-test System Technical Specification (literature number 5980-3027EN).

Drive test system accessories

The following accessories are provided for drive testing (in-vehicle measurements). The drive test accessories are ordered using Agilent 86154A and/or E6473A accessories product numbers.

86154A Option 010
Laptop PC

86154A Option 210
Trimble placer GPS 455 with dead-reckoning

86154A Option 230
Differential GPS receiver

N3419A
Vehicle-mounted display system

86154A Option 531
Briefcase carrier

The briefcase carrier is a lightweight briefcase carrier designed for one test mobile, one Agilent digital receiver, a laptop PC, and connecting cables. The case is designed for transporting the system. It is not intended that the system be operated from within the case.

E6473A Option 010
Vehicle-mounted USB hub kit

This vehicle-mounted USB hub kit is designed for in-vehicle wireless measurements. The USB hub allows the simultaneous connection of two receivers to the laptop PC. In addition, the kit provides powering capability for receiver(s). The kit includes:

- ❏ USB hub
- ❏ Universal mounting plate
- ❏ Permanent power cable
- ❏ USB to computer interface cables (a 3-foot cable and a 15-foot cable)
- ❏ Auto cigarette lighter power cable
- ❏ A USB Hub to Agilent digital receiver interface cable. For a dual receiver configuration, an additional USB Hub to digital receiver 12V power cable is included.

For portable applications, it is recommended that the equivalent E6473A USB hub kit is used. The same USB hub functionality is provided but the kit itself is designed specifically for indoor and portable wireless measurements.

Drive test replacement accessories

The following list of drive test accessories includes replacement accessories that are included with the E7473A CDMA drive-test system. In most cases, these options are only ordered to replace lost or damaged accessories.

Option 099
Multiple receiver interconnect kit

Option 450
W-CDMA band magnetic-mount RF antenna

Option 510
Vehicle mounting kit

Indoor (portable) measurement accessories

The following accessories are provided for indoor and portable wireless measurements. For a detailed description of the indoor accessories, please refer to the Agilent Indoor Wireless Measurement System Product Overview (literature number 5968-8689E).

86154A Option 030
Fujitsu pen tablet computer
The pen tablet computer includes a customized pen tablet computer case. A pen tablet computer is highly recommended for indoor (portable) measurements.

86154A Option 032
Pen tablet computer auto power adapter

86154A Option 034
Pen tablet battery kit

The pen tablet battery kit includes:

- ❏ Pen tablet battery
- ❏ Battery Charger

86154A Option 036
Universal Serial Bus Hub - 4Port

This accessory is useful when the indoor measurement is being used with more than one receiver and/or phone in the backpack carrying case. The USB Hub permits a single cable to be connected from the backpack to the pen tablet computer and at the same time provide the ability to connect multiple serial port configurations. Alternatively, the Agilent E6473A option 020, Portable USB Hub kit can be used not only to provide multiple serial port connections to the pen tablet computer but also to provide power to the receiver(s) and/or phones.

E6473A Option 020
Portable USB Hub Kit

This USB hub kit allows the connection of up to two phones and two receivers to the pen tablet computer. In addition the kit provides powering capability for the receiver(s).
The kit includes:

- ❏ USB hub
- ❏ USB hub carrying bag
- ❏ USB hub battery and battery charger
- ❏ USB to pen tablet computer interface cable
- ❏ Auto cigarette lighter power cable
- ❏ A USB Hub to Agilent digital receiver interface cable. For a dual receiver configuration, an additional USB Hub to digital receiver 12V power cable is included.

E6473A Option 040
Single receiver carrying case

The single receiver carrying case is used for portable configurations where only one Agilent digital receiver is used to perform wireless measurements. The single receiver carrying case is recommended for use with the E6473A USB hub kit and includes one tri-band indoor antenna. For dual receiver configurations, the E6473A option 041, dual receiver carrying case is recommended for use with the portable USB hub kit when two receivers are being used.

E6473A Option 041
Dual receiver carrying case

The dual receiver carrying case is used for portable configurations where two Agilent digital receivers are being used to perform wireless measurements. The dual receiver carrying case is recommended when two receivers are used with the E6473A USB Hub kit. The kit includes two tri-band indoor antennas.

Please note that indoor receiver-based pilot channel analysis and code domain power measurements are limited due to difficulty with GPS timing. Please refer to Agilent E7476A W-CDMA Drive-test System Technical Specification (literature number 5980-3027EN) for a detailed description of W-CDMA indoor measurements.

Part 5: Upgrading existing systems

The Agilent E7476A is a scaleable system. You can start with one set of capability and integrate additional capability later. For example, you can:

- Start with an outdoor drive-test system and upgrade to include indoor measurement capability.

The system is made up of software, receiver hardware, and accessories. Upgrading a system is similar to ordering a new system. You simply order those system elements that you need. To upgrade a system:

1. Decide what system capability you want
2. Identify the capability you currently have
3. Choose the software options that you want (option numbers in the 100s), refer to Part 2: Software Options.
4. Choose the hardware options that you want (option numbers in the 300s), refer to Part 3: Receiver hardware options
5. Choose the accessories that you want (Agilent 86154A and E6473A Drive-Test System Accessories), refer to Part 4: Accessories

Figures 3 and 4 illustrate the process of choosing the specific options to order when you are upgrading an Agilent E7476A system.

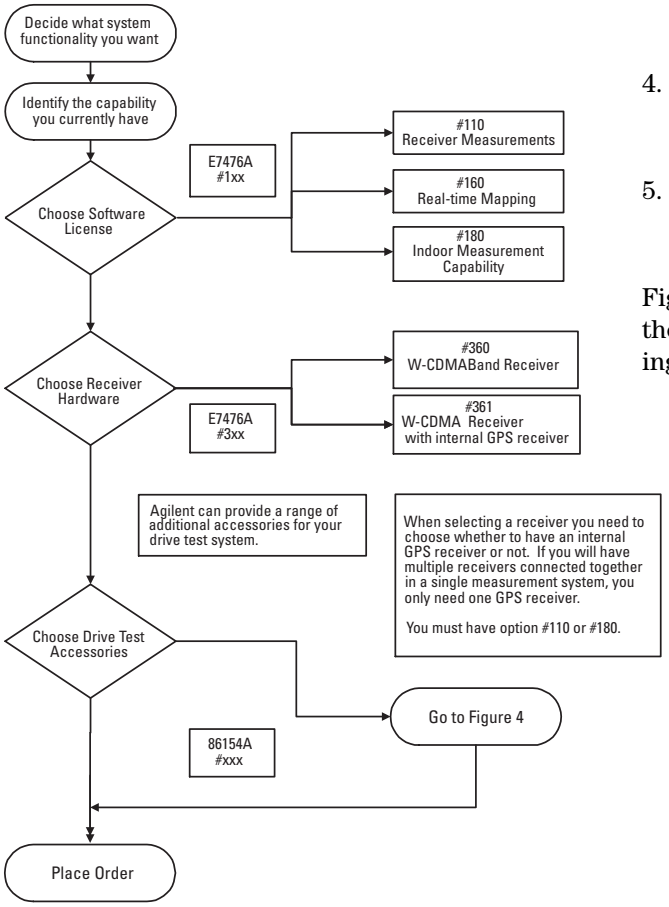


Figure 3. Ordering Decision Process - Upgrades

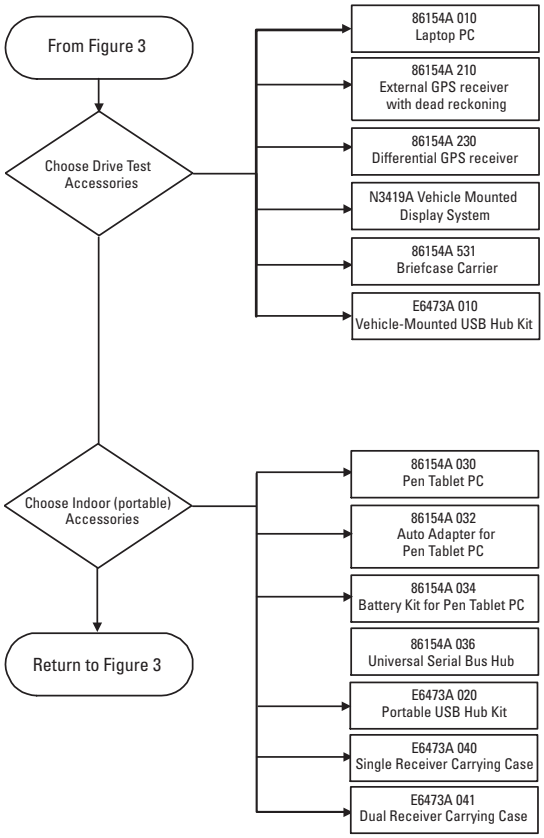


Figure 4. Ordering Decision Process - Accessories for New Systems

Part 6: Ordering examples

Table 3 lists several typical E7476A system configurations along with the products and options that need to be ordered for each configuration. This is not a complete list of all possible configurations, but it uses typical configurations to illustrate the ordering process.

Desired System Capability	What to order	Description	Quantity
Receiver based measurement system for the W-CDMA. Carrying case for the system. You will provide your own GPS and laptop.	Agilent E7476A	Drive test system	1
	Option 110	Receiver measurement software	1
	Option 360	W-CDMA band RF digital receiver	1
	Agilent 86154A	Drive system accessories	1
	Option 531	Briefcase carrier	1
Receiver based measurement system for the W-CDMA band with internal GPS. Carrying case for the system. You will provide your own laptop.	Agilent E7476A	Drive test system	1
	Option 110	Receiver measurement software	1
	Option 361	W-CDMA receiver with internal GPS	1
	Agilent 86154A	Drive system accessories	1
	Option 531	Briefcase carrier	1
Receiver based measurement system for the W-CDMA band with dead reckoning. Carrying case for the system. You want theGPS included with the system.You will provide your own laptop	Agilent E7476A	Drive test system	1
	Option 110	Receiver measurement software	1
	Option 360	W-CDMA band RF digital receiver	1
	Agilent 86154A	Drive system accessories	1
	Option 210	External GPS with DR	1
	Option 531	Briefcase carrier	1

Table 4. Typical ordering configurations.

Product Literature

Configuration guides

E7473A CDMA Drive-Test System 5968-5553E
E7474A TDMA Drive-Test System 5968-5861E
E7475A GSM Drive-Test System 5968-5563E
E7477A cdma2000 Drive-Test System 5980-2308E
E7490A CDMA Over-Air Maintenance Tool 5968-8696E

Technical specifications

E7473A CDMA Drive-Test System 5968-5555E
E7474A TDMA Drive-Test System 5968-5556E
E7475A GSM Drive-Test System 5968-5564E
E7476A W-CDMA Drive-Test System 5980-3027E
E7477A cdma2000 Drive-Test System 5980-2306E
E7490A CDMA Over-Air Maintenance Tool 5968-8687E

Product overviews

E7476A W-CDMA Drive-Test System 5980-2132E
E7477A cdma2000 Drive-Test System 5980-2131E
E7478A GPRS Drive-Test System 5980-2375E
E7475A GSM Drive-Test 5980-0439E
E7480A CDMA Post Processing Software 5968-1549E
Indoor Wireless Measurement System 5968-8691E

Application/product notes

CDMA Drive-Test 5968-5554E
Spectrum And Power Measurements Using The Agilent CDMA, TDMA, And GSM Drive-Test System 5968-8598E
Optimizing Your CDMA Wireless Network Today And Tomorrow Using Drive-Test Solutions. 5968-9916E
Optimizing Your TDMA Network Today And Tomorrow Using Drive-Testing To Identify Interference In IS-136 TDMA Wireless Networks 5980-0219E
Optimizing Your GSM Network Today And Tomorrow Using Drive-Testing To Troubleshoot Coverage, Interference, Handover Margin, And Neighbor Lists 5980-0218E

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